

REMARKS

Claims 26-57 are now pending. Claims 26-46 were examined and rejected on formal and/or substantive grounds. Claims 26-38 and 40-46 have been amended. Claims 47-57 have been added. No claims have been cancelled. Reexamination and reconsideration of all claims, as amended, is respectfully requested.

Examiner Amendment

Applicant thanks the Examiner for the courtesy shown in an Interview on February 5, 1998. Applicant discussed the independent claims relative to the Alexander, III article, and agreement on allowable claim language was reached (subject to additional search).

Rejections Under 35 U.S.C. §112

Claims 26-46 were rejected under 35 U.S.C. §112, Second Paragraph, as allegedly being indefinite. Applicant has amended the claims as suggested by the Examiner to avoid various informalities. As the claims now have the reasonable clarity required under §112, Second Paragraph, Applicant respectfully requests that the rejections be removed, and that the claims be allowed.

Substantive Rejections of the Claims

Claims 33-46 were rejected under 35 U.S.C. §102(a) as allegedly being anticipated by an article entitled "Impacts of Telemation on Modern Society," authored by Alexander, III. Claims 26-32 have been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Alexander, III, further in view of an article entitled "Anthropomorphic Remote Manipulator," authored by Jau. Such rejections are traversed in-part and overcome in-part as follows.

Independent claims 26, 33, and 40 each recite a forearm link each having a proximal end, a distal end, and a forearm axis extending longitudinally from the proximal end of the forearm to the distal end of the forearm. Claim 26 recites that the control section operates with at least five degrees (5°) of freedom including pivotal motion of the forearm link about first and second pivotal axes which intersect the forearm axis at a pivot point adjacent the small incision. Independent claims 33 and 40 recite similar limitations. Such limitations are not taught nor reasonably suggested by the Alexander, III and Jau references, nor by any reasonable combination thereof.

Nonetheless, to even more clearly claim the present invention, Applicant has amended these independent claims to recite that this pivotal motion avoids lateral movement of the forearm link at the pivot point. Hence, the claims now clearly recite structures and methods which are particularly advantageous for minimally invasive surgery, as they allow pivotal positioning of an end effector within the patient body. This pivotal motion is particularly advantageous when combined with the angular orientational capabilities of a wrist joint disposed within the body. This allows an end effector supported by the wrist joint to be both positioned and oriented using a very small inserted structure which is largely manipulated from outside the body, but without imposing movements which would tear or traumatize a small incision or require a large, traumatic retraction of the tissue as in traditional open surgical procedures.

As the independent claims now recite structure and methods which have not been shown in the cited art, Applicant respectfully requests that the rejections under §102 and 103 be removed, and that claims 26-46 be allowed.

The Added Claims

Applicant has added claims 47-57 to more fully claim the present invention. These added claims emphasize the pivotal capabilities of the end effector and the avoidance of lateral movement which has generally been described above.

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CONCLUSION

In view of the foregoing, Applicant believes all claims now pending in this application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at (650) 326-2400.

Respectfully submitted,



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